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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,238	12/20/2006	Udo Becker	08215-589US1	3883
26171 7590 12/04/2008 FISH & RICHARDSON P.C. P.O. BOX 1022 MINNEAPOLIS, MN 55440-1022				
EXAMINER				
BARNES-BULLOCK, CRYSTAL JOY				
ART UNIT		PAPER NUMBER		
2121				
NOTIFICATION DATE		DELIVERY MODE		
12/04/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PATDOCTC@fr.com

### Office Action Summary

**Application No.**

10/596,238

**Applicant(s)**

BECKER ET AL.

**Examiner**

Crystal J. Barnes Bullock

**Art Unit**

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 September 2008.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-16 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 05 June 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/5508)  
4) ☐ Interview Summary (PTO-413)  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_  
Paper No(s)/Mail Date \_\_\_\_\_

### DETAILED ACTION

1. The following is a Final Office Action in response to the Amendment received on 22 September 2008. Claims 1, 11, 12 and 15 have been amended. Claims 1-16 remain pending in this application.

### *Response to Arguments*

2. Applicant's arguments filed 22 September 2008 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "arranging a barrier device that limits applied power in an Ex area, with the barrier device being located in a field unit or data distributing device") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

Claim 1 recites "either the data distributing device or the field units connected thereto, which are also arranged in the Ex area, have a barrier device for limiting applied power" which reads differently than "arranging a barrier device

that limits applied power in an Ex area, with the barrier device being located in a field unit or data distributing device”.

Claim 1 as recited requires the data distributing device or field units to be arranged in the Ex area, but does not require the barrier device to be arranged in the Ex area. Claim 1 as recited requires either the data distributing device or field units to have a barrier device for limiting applied power.

The Burkhard reference discloses

(see column 13 lines 32-38, “The barrier box 14 houses intrinsic safety barriers to distribute power to the driller's monitor 16, the satellite boxes 18-20, the audible alarm 22, and, ultimately, to the various sensors which are located in hazardous locations. Communications from barrier box 14 to these peripherals is via fiber optic cable that provides both safety and an electrical noise-insensitive communication means.”)

(see column 14 lines 43-51, “The barrier box enclosure 60 generally has what is referred to as an intrinsically safe side 80 and a nonintrinsically safe side 82. Power from the master CPU box 12 enters enclosure 60 of barrier box 14 on the nonintrinsically safe side 82. The composite cables 41-44 servicing the intrinsically safe driller's monitor 16 and satellite boxes 18-20 which are located in the

hazardous area connect with enclosure 60 of barrier box 14 on the intrinsically safe side 80.")

*Claim Rejections - 35 USC § 112*

3. The amendments to the claims were received on 22 September 2008. These corrections are acceptable.

*Claim Rejections - 35 USC § 102*

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-10, 12 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,574,652 to Burkhard.

As per claim 1, the Burkhard reference discloses a data transmission device with at least one data adaptation device (see column 7 lines 41-46, "satellite box 18-20") and one data distributing device (see column 7 lines 39-41, "satellite box 18-20"), the data transmission device (see column 6 lines 17-24, "intrinsically safe data acquisition system (DAS) 10") connected between at least one process control computer ("central or master CPU box 12") arranged in a non-Ex area (see figure 1 and column 6 lines 25-27, "unclassified or nonhazardous area 1") and field units (see column 7 lines 57-58, "sensors 31-38") connected thereto via a bus system (see columns 8-9 lines 64-3, "cables 41-43"), wherein the process control computer ("central or master CPU box 12") and field units ("sensors 31-38") are parts of a process control system ("intrinsically safe data acquisition system (DAS) 10") and the data transmission device ("intrinsically safe data acquisition system (DAS) 10") is, in particular, intrinsically safe ("intrinsically safe"), and arranged in an Ex area (see figure 2 and column 6 lines 25-27, "hazardous area 2"), wherein the data adaptation device ("satellite box 18-20") and supply devices (see column 20 lines 64-65, "UPS 11") assigned thereto are formed so that they are explosion-proof ("intrinsically safe") and each supply device ("UPS 11") is connected to the data distributing device ("satellite box 18-20") via an explosion-proof line (see column 14

lines 47-51, "composite cables 41-44"), wherein either the data distributing device ("satellite box 18-20") or the field units ("sensors 31-38") connected thereto, which are also arranged in the Ex area ("hazardous area 2"), have a barrier device (see column 13 lines 32-35, "barrier box 14") for limiting applied power (see column 13 lines 42-44, "intrinsically safe barriers 62, 64").

As per claim 2, the Burkhard reference discloses the data adaptation devices ("satellite box 18-20") and/or supply devices can be mounted on a backwall plate (see column 9 lines 15-18, "enclosure's mounting plate 54") that has a field bus (see column 10 lines 1-4, "electrical cables") for communication among the devices ("field sensors 31-38, barrier box 14") and with the process control computer ("master CPU box 12").

As per claim 3, the Burkhard reference discloses the data adaptation device ("satellite box 18-20") has a data matching and/or data converting circuit (see column 7 lines 41-46, "converts all the received analog signals to digital").

As per claim 4, the Burkhard reference discloses the data adaptation devices ("satellite box 18-20") and/or supply devices ("barrier box 14") are encapsulated in an explosion-proof manner (see column 13 lines 60-62, "blown fiberglass, EMI shielded").

As per claim 5, the Burkhard reference discloses the supply device ("barrier box 14") has at least one output (see column 14 lines 47-51, "cables 41-44") with extended safety (Ex-e) ("intrinsically safe side 80").

As per claim 6, the Burkhard reference discloses the data distributing device ("satellite box 18-20") and/or field unit ("sensors 31-38") is formed for intrinsically safe (Ex-i) signal matching (see column 6 lines 49-51, "intrinsically safe").

As per claim 7, the Burkhard reference discloses the barrier device (see column 6 lines 49-51, "intrinsically safe") is integrated in the field unit ("sensors 31-38") or in the data distributing device ("satellite box 18-20").

As per claim 8, the Burkhard reference discloses the barrier device ("barrier box 14") is a safety barrier (see column 7 lines 49-50, "intrinsically safe barriers") with Zener diodes (see column 15 lines 10-13, "zener diodes 84, 85") and/or resistors (see column 14 lines 56-65, "wirewound resistor") and/or fuses ("fast acting fuse").

As per claim 9, the Burkhard reference discloses the data distributing device ("satellite box 18-20") and field unit ("sensors 31-38") are connected by means of connection lines (see column 10 lines 1-4, "cable connectors 56") rated as



intrinsically safe (Ex-i) (see column 6 lines 49-51, "intrinsically safe") or having extended safety (Ex-e) (see column 14 lines 47-51, "intrinsically safe side 80").

As per claim 10, the Burkhard reference discloses the data distributing device ("satellite box 18-20") is a junction box (see column 9 lines 15-18, "satellite box enclosure 50").

As per claim 12, the Burkhard reference discloses I/O signal matching modules (see column 14 lines 38-42, "connectors 69") can be mounted (see column 14 lines 36-38, "divider plate support 68") on the backwall plate (see column 14 lines 43-45, "barrier box enclosure 60").

As per claim 13, the Burkhard reference discloses the field units ("sensors 31-38") are sensors ("sensors 31-38") and/or actuators.

*Claim Rejections - 35 USC § 103*

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,574,652 B2 to Burkhard in view of USPN 6,885,949 B2 to Selli.

As per claim 11, the Burkhard reference does not expressly disclose the bus system between the process control computer and backwall plate or bus interface module on the backwall plate is a Profibus.

The Selli reference discloses

(see column 6 lines 34-43, "The processor 108 transmits commands to these various sensors of the sensor array 32 by utilizing a particular communications protocol and receives commands from the various sensors of the sensor array 32 utilizing a communications protocol which is compliant with the protocol of the sensors. In an exemplary embodiment of the present invention, the communications protocol is Fieldbus. In another certain embodiment, the communications protocol is HART.RTM. protocol, PROFIBUS.RTM. protocol, etc.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the cables taught by the Burkhard reference to utilize the communications protocols taught by the Selli reference.

One of ordinary skill in the art would have been motivated to modify the cables to utilize the communications protocol which is compliant with the protocol of the sensors.

8. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,574,652 B2 to Burkhard in view of USPN 6,169,488 B1 to Ketler.

As per claim 14, the Burkhard reference does not expressly disclose the process control computer is connected to a server via a high-speed data transmission device.

The Ketler reference discloses

(see column 4 lines 41-42, "A communications bus 204 connects the unit boxes with a central computer 205.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the data acquisition system taught by the Burkhard reference with the central computer and communications bus taught by the Ketler reference.

One of ordinary skill in the art would have been motivated to modify the data acquisition system with the central computer and communications bus to

quickly detect the presence of any hazardous substances at a remote location of a facility or process.

As per claim 15, the Burkhard reference does not expressly disclose the server is connected to an input device for, at least, maintenance and modification of the process control system.

The Ketler reference discloses

(see columns 5-6 lines 66-6, "A Rem-Cal card, 29, which is a proprietary remote calibration, current regulator, and signal regenerator card, is connected by jumper wires (not all shown) to each intrinsic safety barrier 28. The unit box also includes four DX4404B cards, which are proprietary multipurpose field input-output cards, each with 4 analog inputs, 4 digital inputs, and 4 digital outputs (SPDT relays).")

(see column 6 lines 11-13, "Blinking LEDs 32A show communication polling and responses between the remote computer and each DX4404B card.")

(see column 8 lines 46-54, "Calibrated 4-20 ma sensor signals from the Rem-Cal modules are passed onto the DX4404B cards for monitoring. The DX cards are microprocessor-based circuit modules which handle the communications and the

input/output signals. Each card is capable of monitoring four analog (4-20 ma) inputs and four digital contact closure inputs while controlling four digital (on/off) outputs, all orchestrated through the central computer facility, which can be sited at any remote location.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the data acquisition system taught by the Burkhard reference with the central computer and communications bus taught by the Ketler reference.

One of ordinary skill in the art would have been motivated to modify the data acquisition system with the central computer and communications bus to provide long distance communications, remote calibration and regulator modules, and intrinsic safety barriers in one compact module.

As per claim 16, the Burkhard reference does not expressly disclose the data adaptation device is connected directly to the process control computer.

The Ketler reference discloses

(see column 4 lines 34-42, "Sixteen sensors 201 per unit box 202 feed signals from the area of hazardous gases into a fresh air area where the unit

boxes are located in a plant, building, mine, or other facility. Alternatively, the unit box is configured to be explosion-proof if fresh air is not available. An AC/DC power source 203 provides each unit box with power, or DC power can be brought from an adjacent, AC/DC powered unit. A communications bus 204 connects the unit boxes with a central computer 205.")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the data acquisition system taught by the Burkhard reference with the central computer and communications bus taught by the Ketler reference.

One of ordinary skill in the art would have been motivated to modify the data acquisition system with the central computer and communications bus to provide long distance communications, remote calibration and regulator modules, and intrinsic safety barriers in one compact module.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to intrinsically safe data transmission:

USPN 6,859,755 B2 to Eryurek et al.

USPN 5,835,534 to Kogure

USPN 4,860,151 to Hutcheon et al.

USPN 3,631,264 to Morgan

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will

the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes Bullock whose telephone number is 571.272.3679. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert Decady can be reached on 571.272.3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Crystal J. Barnes Bullock/  
Primary Examiner, Art Unit 2121  
24 November 2008